

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 63-056924

(43)Date of publication of application : 11.03.1988

(51)Int.Cl.

H01L 21/60

(21)Application number : 61-202043

(71)Applicant : MITSUBISHI ELECTRIC CORP

(22)Date of filing :

27.08.1986

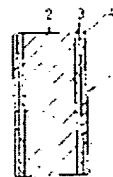
(72)Inventor : MIYAMOTO KOJI

NAKAGAWA KOICHI

## (54) SMALL-GAGE METAL WIRE FOR WIRE BONDING

## (57)Abstract:

PURPOSE: To coat a copper wire with a chemically stable gold plating layer, and to prevent a contact with air by forming a surface-preparation plating layer onto the surface of the copper wire while shaping the gold plating layer on the outside of the surface-preparation plating layer.



CONSTITUTION: A small-gage metal wire 1 for wire bonding is constituted of a copper wire 2, a nickel plating layer 3 as a surface-preparation plating layer formed onto the surface of the copper wire 2 and a gold plating layer 4 shaped outside the nickel plating layer 3. The outer diameter of the small-gage metal wire 1 is set so as to be equalized with conventional gold wires. The copper wire 2 is manufactured through a wire drawing working method through which a long-sized wire rod composed of high-purity copper is drawn by a wire drawing machine, and the outer diameter of the copper wire 2 is set at a value slightly smaller than conventional gold wires. The nickel plating layer 3 is shaped onto the whole surface of the copper wire 2 through a known nickel plating method. The gold plating layer 4 is formed through a known gold plating method. A diffusion into the copper wire 2 of the gold plating layer 4 is prevented by the nickel plating layer 3.

## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

Copyright (C); 1998,2000 Japanese Patent Office